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EXAMINER

ROSE, KIESHA L

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/846,047

Applicant(s)

CHEN ET AL.

Examiner

Kiesha L. Rose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

This Office Action is in response to the amendment filed 16 December 2002.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1-47 disclose nano-porous openings in the cathode layer and the added disclosure in the specification describing Fig. 12a and 12b referring to the nano-porous openings, these limitations are not disclosed in the specification and therefore is considered new matter.

Claims 36-42 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 36-42 disclose a first and second chamber and sidewalls, which are not disclosed in the specification.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Fig. 11K, #'s 81 and 83

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11,13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Xia (U.S. Patent 6,034,479).

Xia discloses an emission display (Figs. 1 and 3) that contains an electronic device which is a display device that contains an emitter (13) capable of emitting energy, an anode (18) for receiving the emitted energy and generating a first effect in response to the receiving the emitted energy and a second effect in response to not receiving the emitted energy which is a display screen that creates a visible effect in response to receiving emitted energy and includes at least one phosphors operable for

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emitting photons, an integrated circuit with the emitter and a focusing device for converging the emissions from the emitter.

Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Gibson (U.S. Patent 5,557,596).

Gibson discloses a storage device (Fig. 1A) that contains an integrated circuit (100) including the emitter (104) which creates an electron beam current, a storage medium (106) in close proximity to the emitter, a storage area (108) being in one of a plurality of states to represent the information stored in that storage area, an effect is generated when the electron beam current bombards the storage area, the magnitude of the effect depends on the state of the storage area and the information stored in the storage area is read by measuring the magnitude of the effect.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuman (U.S. Patent 6,023,124) in view of Nakatani (U.S. Patent 6,008,576).

Chuman discloses an electron emission display device (Fig. 1) that contains a substrate (10), an emitter capable of emitting energy that contains an electron supply (12), a 500 Angstroms thick SiNx dielectric layer (13) (Column 5, lines 30-33) disposed

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on the electron supply, a molybdenum cathode layer (15) disposed on the silicon based dielectric layer, an anode structure (2) capable of receiving the emitted energy and creates a visible effect and voltage supplies for operating the emitter. In regards to the electron supply, dielectric layer and cathode layer being subjected to an annealing process, a "*product by process*" claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972); *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); *In re Fessmann*, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a "*product by, all of*" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "*product by process*" claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product -by [-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)." In regards to claims 4-6, Chuman discloses an emission current with a max current of 10<sup>-3</sup> Amps per square centimeter. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the emission current greater than 10<sup>-3</sup> Amps per square centimeters to provide high luminance. Chuman discloses all of the limitations except

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the device having and integrated circuit and lens. Whereas Nakatani discloses a flat display (Figs. 2 and 3) that contains an integrated circuit with a substrate (6), an emitter (3a) formed on substrate for emitting a visible light source, a lens (8) coated with a transparent conducting surface to capture electrons and for focusing the visible light source and a circuitry for operating the emitter. The integrated circuit and emitter and lens are formed to form a display device to show emitted light from the emitter. (Column 9, lines 1-5) Since Chuman, Moyer and Nakatani are both from the same field of endeavor, semiconductor devices, the purpose disclosed by Nakatani would have been recognized in the pertinent art of Chuman and Moyer. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the devices of Chuman and Moyer by incorporating an integrated circuit and lens to the emitter device to form a display device to show emitted light from the emitter as taught by Nakatani.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xia in view of Gibson.

Xia discloses an emission display (Fig. 4) with a reading circuit (40) and discloses all of the limitations except for the electronic device to be a mass storage and the anode to be a recording medium. Whereas Gibson discloses a storage device (Fig. 1a) that contains an anode storage area (108) or recording medium. The anode storage area is a recording medium to provide a medium to storage data. (Column 2, lines 1-9) Since Xia and Gibson are both from the same field of endeavor, semiconductor devices, the purpose disclosed by Gibson would have been recognized

in the pertinent art of Xia. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the emission display of Xia by incorporating a mass storage device and recording medium to provide a medium to storage data as taught by Gibson.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuman in view of Gibson.

Chuman discloses an electron emission display device (Fig. 1) that contains a substrate (10), an emitter capable of emitting energy that contains an electron supply (12), a 500 Angstroms thick SiNx dielectric layer (13) disposed on the electron supply, a molybdenum cathode layer (15) disposed on the silicon based dielectric layer, an anode structure (2) capable of receiving the emitted energy and creates a visible effect and voltage supplies for operating the emitter. In regards to the emitter being subjected to an annealing process, a "*product by process*" claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972); *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); *In re Fessmann*, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a "*product by, all of*" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "*product by process*" claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product -by [-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself.



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The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)."

Chuman discloses all of the limitations except for the device to be a storage device.

Whereas Gibson discloses a storage device (Fig. 1A) that contains an integrated circuit (100) including the emitter (104) which creates an electron beam current, a storage medium (106) in close proximity to the emitter, a storage area (108) being in one of a plurality of states to represent the information stored in that storage area, an effect (signal current) is generated when the electron beam current bombards the storage area, the magnitude of the effect depends on the state of the storage area and the information stored in the storage area is read by measuring the magnitude of the effect.

A storage device is formed to provide a medium to store data. Since Chuman and Gibson are both from the same field of endeavor, semiconductor devices, the purpose disclosed by Gibson would have been recognized in the pertinent art of Chuman.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electron emission device of Chuman by incorporating a storage device to provide a medium to store data as taught by Gibson.

Claims 17-22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuman in view of Moyer (U.S. Patent 5,473,218) and Nakatani.

Chuman discloses an electron emission display device (Fig. 1) that contains a substrate (10), an emitter capable of emitting energy that contains an electron supply

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(12), a 500 Angstroms thick SiNx dielectric layer (13) (Column 5, lines 30-33) disposed on the electron supply, a molybdenum cathode layer (15) disposed on the silicon based dielectric layer, an anode structure (2) capable of receiving the emitted energy and creates a visible effect and voltage supplies for operating the emitter. In regards to the electron supply, dielectric layer and cathode layer being subjected to an annealing process, a "*product by process*" claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972); *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); *In re Fessmann*, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a "*product by, all of*" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "*product by process*" claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product -by [-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)." In regards to claims 19 and 21-22, Chuman discloses an emission current with a max current of 10<sup>-3</sup> Amps per square centimeter and an emission rate of 0.01 Amps. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the

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emission current greater than 10-3 Amps per square centimeters and an emission rate of 0.01 Amps to provide higher luminance. (Column 2, lines 24-26) Chuman discloses all of the limitations except for an insulator layer formed on electron layer with an aperture. Whereas Moyer discloses an electron emission control (Fig. 3) that emits electron as well as photons and contains an insulating layer (38) with an aperture formed there through. The insulating layer is formed to insulate the electron supply layer. Since Chuman and Moyer are both from the same field of endeavor, electron emitter devices, the purpose disclosed by Moyer would have been recognized in the pertinent art of Chuman. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electron emission device of Chuman by incorporating an insulating layer for insulating the electron supply layer as taught by Moyer. Chuman and Moyer disclose all of the limitations except for the emitter to have an integrated circuit and lens. Whereas Nakatani discloses a flat display (Figs. 2 and 3) that contains an integrated circuit with a substrate (6), an emitter (3a) formed on substrate for emitting a visible light source, a lens (8) coated with a transparent conducting surface to capture electrons and for focusing the visible light source and a circuitry for operating the emitter. The integrated circuit and emitter and lens are formed to form a display device to show emitted light from the emitter. (Column 9, lines 1-5) Since Chuman, Moyer and Nakatani are both from the same field of endeavor, semiconductor devices, the purpose disclosed by Nakatani would have been recognized in the pertinent art of Chuman and Moyer. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to

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modify the devices of Chuman and Moyer by incorporating an integrated circuit and lens to the emitter device to form a display device to show emitted light from the emitter as taught by Nakatani.

Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuman, Moyer and Nakatani as applied to claims 17 and 25 above, and further in view of Xia.

Chuman, Moyer and Nakatani disclose all of the limitations except for a computer system. Whereas Xia discloses a emission display (Fig. 3) that contains a microprocessor (33), the electronic device (34)(storage device or display device (Column 3, lines 50-53)) coupled to the microprocessor and a memory (31) coupled to the microprocessor which is operable of executing instructions from the memory to transfer data between the memory and the electronic device. The computer system is added to control which pixel is turned on as well as obtaining the anode current from the circuit. (Column 4, lines 13-17) Since Chuman, Moyer, Nakatani and Xia are both from the same field of endeavor, semiconductor devices, the purpose disclosed by Xia would have been recognized in the pertinent art of Chuman, Moyer and Nakatani.

Claims 29-35 and 43-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chuman and Moyer and Huang (U.S. Patent 5,702,281).

Chuman discloses an electron emission display device (Fig. 1) that contains a substrate (10), an emitter capable of emitting energy that contains an electron supply (12), a 500 Angstroms thick SiNx dielectric layer (13) (Column 5, lines 30-33) disposed on the electron supply, a cathode layer (11) disposed on the silicon based dielectric

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layer, a conductive layer (15). In regards to the electron supply, dielectric layer and cathode layer being subjected to an annealing process, a "*product by process*" claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972); *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); *In re Fessmann*, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a "*product by, all of*" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "*product by process*" claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product-by-[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)." In regards to claims 30, 32-34 and 44-45, Chuman discloses an emission current with a max current of 10<sup>-3</sup> Amps per square centimeter and an emission rate of 0.01 Amps. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the emission current greater than 10<sup>-3</sup> Amps per square centimeters and an emission rate of 0.01 Amps to provide higher luminance. (Column 2, lines 24-26) Chuman discloses all of the limitations except for an insulator layer formed on electron layer with an aperture.

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Whereas Moyer discloses an electron emission control (Fig. 3) that emits electron as well as photons and contains an insulating layer (38) with an aperture formed there through. The insulating layer is formed to insulate the electron supply layer. Since Chuman and Moyer are both from the same field of endeavor, electron emission devices, the purpose disclosed by Moyer would have been recognized in the pertinent art of Chuman. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electron emitter device of Chuman by incorporating an insulating layer for insulating the electron supply layer as taught by Moyer. Chuman and Moyer disclose all of the limitations except for an adhesive layer. Whereas Huang discloses an emitter that contains an adhesive layer formed to improve adhesion. (Column 3, lines 60-67) Since Chuman, Moyer and Huang are both from the same field of endeavor, electron emitter devices, the purpose disclosed by Huang would have been recognized in the pertinent art of Chuman and Moyer. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Chuman and Moyer by incorporating an adhesive layer to improve adhesion between the layers as taught by Huang.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-47 have been considered but are moot in view of the new ground(s) of rejection. Applicant's argue that the Nakatani reference does not disclose a lens for focusing light with a transparent layer, this layer is disclosed in Fig. 2 as reference 8.

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 703-605-4212. The examiner can normally be reached on M-F 8:30-6:00 off 1st Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 703-308-4905. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KR

KLR

March 4, 2003

  
AMIR ZARABIAN  
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